

U.S. Patent Application Serial No. 10/760,491

Response filed August 22, 2008

Reply to OA dated April 22, 2008

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 Claim 1 (currently amended): A map information processing device for displaying
2 a current position of a movable body overlaid onto a map on a display, comprising:

3 a current position ~~information~~ acquiring section that acquires a current position of the
4 movable body ~~information~~ for the current position;

5 a destination information acquiring section the acquires a destination to which the movable
6 body travels;

7 a matching data acquiring section that acquires a matching data including a plurality of point
8 information that has a coordinates information and a unique point information and represents
9 predetermined points, and a segment information that has a unique segment information and
10 connects a pair of the point information, and representing a road with the point information and the
11 segment information, the matching data further including a flag information that shows with one-bit
12 a relation of the point information with other point information according to the determination
13 whether the represented points are identical or not and represents the road arrangement;

14 a search section that searches for a travel route on which the movable body travels based on

15 the current position and the destination using the matching data;

16 a correction section that recognizes the relation of the point information with the other point
17 information having the same coordinates information based on the flag information of the point
18 information to recognize the road arrangement and corrects the current position ~~information~~ so that
19 the current position is on the road represented by the point information and the segment information
20 of the matching data; and

21 a display controller that displays the ~~[[road]]~~ travel route based on the point information and
22 the segment information of the matching data on the display and overlays the current position
23 corrected by the correction section onto the displayed ~~[[road]]~~ travel route on the display.

1 Claim 2 (original): The map information processing device according to claim 1, further
2 comprising:

3 a display data acquiring section that acquires a display data including an element data for an
4 element constituting a map of a predetermined area corresponding to the matching data,

5 wherein the display controller displays an element of the map excluding the road displayed
6 based on a road information based on the display data.

1 Claim 3 (original): The map information processing device according to claim 2,

2 wherein the matching data has a plurality of matching mesh information divided into
3 predetermined areas,

4 wherein the display data has a plurality of display mesh information divided into
5 predetermined areas, and

6 wherein the display controller displays the current position overlaid onto the map based on
7 the matching mesh information including the point information and the segment information, each
8 of which generates the road information representing the road on which the corrected current
9 position is overlaid on the display, and displays the map for areas other than the areas represented
10 by the matching mesh information based on the display mesh information.

1 Claim 4 (original): The map information processing device according to any one of claims

2 1,

3 wherein the matching data has a line block information including an information for the road
4 arrangement associated with the plurality of the segment information that represent one road, and

5 wherein the display controller uses the information for the road arrangement in the line block
6 information to display the road and displays the map on the display.

1 Claim 5 (original): The map information processing device according to any one of claims

2 1,

3 wherein the display controller generates a polyline connecting the point information, and
4 displays the road based on the polyline on the display.

1 Claim 6 (withdrawn): The map information processing device according to any one of claims
2 1 for distributing the map information over a network,

3 wherein the map information has the matching data including the plurality of point
4 information that has the coordinates information and the unique point information and represents the
5 predetermined points, and the segment information that has the unique segment information and
6 connects the pair of point information, and representing the road with the point information and the
7 segment information, and the display data including the element data for the element constituting
8 the map of the predetermined area corresponding to the matching data,

9 the map information processing device, further comprising:

10 a request information recognizer that recognizes a request information for requesting the
11 distribution of at least one of the matching data and the display data; and

12 a delivery controller that distributes at least one of the matching data and the display data
13 over the network based on the request information recognized by the request information recognizer.

1 Claim 7 (withdrawn): The map information processing device according to claim 6,

2 wherein the element data of the display data has a road element data for displaying the road
3 and a secondary element data for displaying an element constituting a map excluding the road, and

4 wherein the delivery controller distributes only the secondary element data as the display data
5 for the area corresponding to the matching data when the request information recognizer recognizes
6 that the request information includes the matching data and the display data for the area

corresponding to the requested matching data.

Claim 8 (withdrawn): The map information processing device according to claim 6, wherein the request information requests the distribution of the map information to be used to provide the traveling state of a movable body.

Claim 9 (withdrawn): The map information processing device according to any one of claims 1 for distributing the map information over the network and providing the traveling state of a movable body with use of the map information,

wherein the map information has the matching data including the plurality of point information that has the coordinates information and the unique point information and represents the predetermined points, the segment information that has the unique segment information and connects the pair of point information, representing the road with the point information and the segment information and including the plurality of matching mesh information divided into predetermined areas, and the display data including the element data for the element constituting the map of the predetermined area corresponding to the matching data,

the map information processing device, further comprising:

a storage for storing the map information;

an information acquiring section that acquires the current position information for the current

14 position of the movable body and a destination information for a destination to which the movable
15 body travels;

16 a search section that searches a travel route on which the movable body travels with use of
17 the matching data based on the current position information and the destination information; and

18 a delivery controller that distributes the matching mesh information including the point
19 information and the segment information that represent the road corresponding to the searched travel
20 route and the display mesh information corresponding to the area other than the area represented by
21 the matching mesh information together with information for the travel route over the network.

1 Claim 10 (withdrawn): The map information processing device according to claim 9,
2 wherein the element data of the display data has a road element data for displaying the road
3 and a secondary element data for displaying an element consisting of a map excluding the road, and
4 wherein the delivery controller also distributes the secondary element data of the display data
5 for the area corresponding to the matching mesh information to be distributed.

1 Claim 11 (withdrawn): The map information processing device according to any one
2 of claims 1, further comprising:

3 a map information acquiring section that acquires at least the point information out of the
4 map information from a recording medium that stores the map information including the plurality
5 of point information that has the coordinates information and the unique point information and

6 represents the predetermined points, and the segment information that has the unique segment
7 information and connects the pair of point information, and representing the road with the point
8 information and the segment information, the point information further having a flag information
9 that shows a relation of the point information with other point information according to the
10 determination whether the represented points are identical or not and represents the road
11 arrangement; and

12 a coordinates matching section that recognizes the relation of the point information with other
13 point information based on the flag information of the point information acquired by the map
14 information acquiring section and recognizes the road arrangement.

1 Claim 12 (withdrawn): The map information processing device according to claim 11,
2 comprising a storage having a recording medium that stores the map information and a reading
3 section that reads the map information stored in the recording medium, the map information
4 including the plurality of point information that has the coordinates information and the unique point
5 information and represents predetermined points, and the segment information that has the unique
6 segment information and connects the pair of point information, and representing the road with the
7 point information and the segment information, the point information further having the flag
8 information that shows the relation of the point information with other point information according
9 to the determination whether the represented points are identical or not and represents the road
10 arrangement.

1 Claim 13 (withdrawn): The map information processing device according to any one
2 of claims 1,

3 wherein the map information processing device performs a processing on the map
4 information being stored in a storage, including the plurality of point information that has the
5 coordinates information and the unique point information and represents the predetermined points,
6 and the segment information that has the unique segment information and connects the pair of point
7 information, and representing the road with the point information and the segment information, and

8 wherein the point information has a flag information showing a relation with other point
9 information according to the determination whether the represented points are identical or not and
10 representing the road arrangement;

11 the map information processing device, further comprising:

12 a map information acquiring section that acquires at least the point information out of the
13 map information; and

14 a coordinates matching section that recognizes the relation of the point information with other
15 point information based on the flag information of the point information acquired by the map
16 information acquiring section and recognizes the road arrangement.

1 Claim 14 (withdrawn): The map information processing device according to claim 13,
2 comprising a storage that stores the map information, the map information including the plurality

3 of point information that has the coordinates information and the unique point information and
4 represents the predetermined points, and the segment information that has the unique segment
5 information and connects the pair of point information, and representing the road with the point
6 information and the segment information, the point information further having the flag information
7 that shows the relation of the point information with other point information according to the
8 determination whether the represented points are identical or not and represents the road
9 arrangement.

1 Claim 15 (withdrawn): The map information processing device according to any one
2 of claims 11, wherein the coordinates matching section recognizes the relation of the point
3 information as the coordinates information of the point information acquired by the map information
4 acquiring section are identical based on the flag information.

1 Claim 16 (withdrawn): The map information processing device according to any one
2 of claims 13, wherein the coordinates matching section recognizes the relation of the point
3 information as the coordinates information of the point information acquired by the map information
4 acquiring section are identical based on the flag information.

1 Claim 17 (withdrawn): The map information processing device according to any one
2 of claims 11, wherein the coordinates matching section recognizes that the road arrangement is still

3 continuing, the road being represented by the different point information connected with the different
4 link, by recognizing that the different point information represents the identical point.

1 Claim 18 (withdrawn): The map information processing device according to any one
2 of claims 13, wherein the coordinates matching section recognizes that the road arrangement is still
3 continuing, the road being represented by the different point information connected with the different
4 link, by recognizing that the different point information represents the identical point.

1 Claim 19 (withdrawn): The map information processing device according to any one
2 of claims 11, further comprising a search section that searches the travel route based on the road
3 arrangement recognized by the coordinates matching section.

1 Claim 20 (withdrawn): The map information processing device according to any one
2 of claims 13, further comprising a search section that searches the travel route based on the road
3 arrangement recognized by the coordinates matching section.

1 Claim 21 (currently amended): A map information processing system, comprising:
2 a terminal unit including a display for displaying a current position of a movable body
3 overlaid onto a map; and
4 a map information processing device, a map information processing device being connected

5 to the terminal unit over a network in a manner capable of sending/receiving various information

6 the device, comprising:

7 a current position ~~information~~ acquiring section that acquires a current position of the
8 movable body information for the current position;

9 a destination information acquiring section that acquires a destination to which the movable
10 body travels;

11 a matching data acquiring section that acquires a matching data including a plurality of point
12 information that has a coordinates information and a unique point information and represents
13 predetermined points, and a segment information that has a unique segment information and
14 connects the pair of point information, and representing a road with the point information and the
15 segment information, the matching data further including a flag information that shows with one-bit
16 a relation of the point information with other point information according to the determination
17 whether the represented points are identical or not and represents the road arrangement;

18 a search section that searches for a travel route on which the movable body travels based on
19 the current position and the destination using the matching data;

20 a correction section that recognizes the relation of the point information with the other point
21 information having the same coordinates information based on the flag information of the point
22 information to recognize the road arrangement and corrects the current position ~~information~~ so that
23 the current position is on the road represented by the point information and the segment information
24 of the matching data; and

25 a display controller that displays the [[road]] travel route based on the point information and
26 the segment information of the matching data on the display and overlays the current position
27 corrected by the correction section onto the displayed [[road]] travel route on the display.

1 Claim 22 (withdrawn): A map information processing system for displaying a current
2 position overlaid onto a map on a display, comprising:

3 a terminal unit including a current position information generating section and the display,
4 the current position information generating section generating a current position information for the
5 current position; and

6 a server unit including a storage that stores a matching data including a plurality of point
7 information that has a coordinates information and a unique point information and represents
8 predetermined points and a segment information that has a unique segment information and connects
9 the pair of point information and representing a road with the point information and the segment
10 information, a current position information acquiring section that acquires the current position
11 information from the terminal unit over a network, a correction section that corrects the current
12 position information so that the current position is on the road represented by the point information
13 and the segment information of the matching data, and a transceiver that outputs the matching data
14 and the corrected current position information to the terminal unit over the network,

15 wherein the terminal unit displays the road based on the point information and the segment
16 information of the matching data acquired from the server unit on the display and overlays the

17 current position information acquired from the server unit and corrected onto the displayed road on
18 the display.

1 Claim 23 (withdrawn): A map information processing system for displaying a current
2 position overlaid onto a map on a display, the system comprising:

3 a server unit provided with a storage that stores a matching data including a plurality of point
4 information that has a coordinates information and a unique point information and represent
5 predetermined points, and a segment information that has a unique segment information and
6 connects the pair of point information, and representing a road with the point information and the
7 segment information; and

8 a terminal unit connected to the server unit over a network in a manner capable of
9 sending/receiving various information, the terminal unit including the display, a current position
10 information generating section that generates a current position information for the current position,
11 a terminal transceiver that acquires the matching data from the server unit over the network, a
12 correction section that corrects the current position information so that the current position is on the
13 road represented by the point information and the segment information of the matching data, and a
14 display controller that displays the road based on the point information and the segment information
15 of the matching data on the display and overlays the corrected current position information onto the
16 displayed road on the display.

1 Claim 24 (withdrawn): A map information processing system comprising:
2 a map information processing device for distributing a map information over a network,
3 wherein the map information has a matching data including a plurality of point information
4 that has a coordinates information and a unique point information and represents predetermined
5 points, and a segment information that has a unique segment information and connects the pair of
6 point information, and representing a road with the point information and the segment information,
7 and a display data including an element data for an element constituting a map of a predetermined
8 area corresponding to a matching data,

9 the map information processing device, further comprising:
10 a request information recognizer that recognizes a request information for requesting the
11 distribution of at least one of the matching data and the display data; and

12 a delivery controller that distributes at least one of the matching data and the display data
13 over the network based on the request information recognized by the request information recognizer,

14 A map information processing system, further comprising:
15 a terminal unit connected to the map information processing device over a network in a
16 manner capable of sending/receiving information and provided with a transceiver that sends a
17 request information to the map information processing device over the network and receives the
18 distributed map information.

1 Clam 25 (withdrawn): The map information processing system according to claim 22

2 for distributing the map information from the server unit storing the map information to the terminal
3 unit connected to the server unit that stores the map information over the network in a manner
4 capable of sending/receiving various information,

5 wherein the server unit has a storage that stores the map information that has the matching
6 data including the plurality of point information that has the coordinates information and the unique
7 point information and represents the predetermined points, the segment information that has the
8 unique segment information and connects the pair of point information, and representing the road
9 with the point information and the segment information, and a display data including an element data
10 for an element constituting a map of a predetermined area corresponding to the matching data, a
11 request information recognizer that recognizes a request information requesting the distribution of
12 at least one of the matching data and the display data, and a delivery controller that distributes at
13 least one of the matching data and the display data over the network based on the request information
14 recognized by the request information recognizer, and

15 wherein the terminal unit has a request information generating section that generates the
16 request information and a transceiver that sends the request information to the server unit over the
17 network and receives the map information distributed from the server unit.

1 Claim 26 (withdrawn): The map information processing system according to claim 23
2 for distributing the map information from the server unit storing the map information to the terminal
3 unit connected to the server unit that stores the map information over the network in a manner

capable of sending/receiving various information,

wherein the server unit has a storage that stores the map information that has the matching data including the plurality of point information that has the coordinates information and the unique point information and represents the predetermined points, the segment information that has the unique segment information and connects the pair of point information, and representing the road with the point information and the segment information, and a display data including an element data for an element constituting a map of a predetermined area corresponding to the matching data, a request information recognizer that recognizes a request information requesting the distribution of at least one of the matching data and the display data, and a delivery controller that distributes at least one of the matching data and the display data over the network based on the request information recognized by the request information recognizer, and

wherein the terminal unit has a request information generating section that generates the request information and a transceiver that sends the request information to the server unit over the network and receives the map information distributed from the server unit.

Claim 27 (withdrawn): A map information processing system, comprising:
a map information processing device for distributing a map information over the network and providing the traveling state of a movable body with use of the map information,
wherein the map information has a matching data including a plurality of point information that has a coordinates information and a unique point information and represents predetermined

6 points, a segment information that has a unique segment information and connects the pair of point
7 information, representing a road with the point information and the segment information and
8 including a plurality of matching mesh information divided into predetermined areas, and a display
9 data including an element data for an element constituting a map of a predetermined area
10 corresponding to a matching data,

11 the map information processing device, further comprising:

12 a storage for storing the map information;

13 an information acquiring section that acquires a current position information for a current
14 position of the movable body and a destination information for a destination to which the movable
15 body travels;

16 a search section that searches a travel route on which the movable body travels with use of
17 the matching data based on the current position information and the destination information; and

18 a delivery controller that distributes the matching mesh information including the point
19 information and the segment information that represent the road corresponding to the searched travel
20 route and the display mesh information corresponding to the area other than the area represented by
21 the matching mesh information together with information for the travel route over the network,

22 the system, further comprising:

23 a terminal unit connected to the map information processing device over the network in a
24 manner capable of sending/receiving information, the terminal unit including an information
25 generating section that generates a current position information and a destination information of the

26 movable body, a display capable of displaying the map information and a display controller that
27 displays a road based on a matching data of the map information distributed from the map
28 information processing device and information for a travel route, and also displays information
29 excluding the road based on a display data.

1 Claim 28 (withdrawn): The map information processing system according to claim 22
2 for displaying the traveling state of the movable body on the display of the terminal unit connected
3 to the server unit that stores the map information over the network in a manner capable of
4 sending/receiving various information,

5 wherein the map information has the matching data including the plurality of point
6 information that has the coordinates information and the unique point information and represents the
7 predetermined points, the segment information that has the unique segment information and connects
8 the pair of point information, representing the road with the point information and the segment
9 information, and including a plurality of matching mesh information divided into predetermined
10 areas, and a display data including an element data for an element constituting a map of a
11 predetermined area corresponding to the matching data,

12 wherein the terminal unit has the display, a current position information generating section
13 that generates a current position information for a current position of the movable body, a destination
14 information generator that generates a destination information for a destination to which the movable
15 body travels, and

16 wherein the server unit has a storage that stores the map information, an information
17 acquiring section that acquires the current position information and the destination information, a
18 search section that searches a travel route on which the movable body travels with use of the
19 matching data based on the current position information and the destination information, and a
20 delivery controller that distributes a matching mesh information including the point information and
21 the segment information that represent the road corresponding to the searched travel route and a
22 display mesh information corresponding to an area other than the area represented by the matching
23 mesh information together with an information for the travel route to the terminal unit.

1 Claim 29 (withdrawn): The map information processing system according to claim 23
2 for displaying the traveling state of the movable body on the display of the terminal unit connected
3 to the server unit that stores the map information over the network in a manner capable of
4 sending/receiving various information,

5 wherein the map information has the matching data including the plurality of point
6 information that has the coordinates information and the unique point information and represents the
7 predetermined points, the segment information that has the unique segment information and connects
8 the pair of point information, representing the road with the point information and the segment
9 information, and including a plurality of matching mesh information divided into predetermined
10 areas, and a display data including an element data for an element constituting a map of a
11 predetermined area corresponding to the matching data,

12 wherein the terminal unit has the display, a current position information generating section
13 that generates a current position information for a current position of the movable body, a destination
14 information generator that generates a destination information for a destination to which the movable
15 body travels, and

16 wherein the server unit has a storage that stores the map information, an information
17 acquiring section that acquires the current position information and the destination information, a
18 search section that searches a travel route on which the movable body travels with use of the
19 matching data based on the current position information and the destination information, and a
20 delivery controller that distributes a matching mesh information including the point information and
21 the segment information that represent the road corresponding to the searched travel route and a
22 display mesh information corresponding to an area other than the area represented by the matching
23 mesh information together with an information for the travel route to the terminal unit.

1 Claim 30 (currently amended): A map information processing system, comprising:
2 a map information processing device, comprising:
3 a map information acquiring section that acquires at least a point information out of a map
4 information from a recording medium that stores the map information including a plurality of point
5 information that has a coordinates information and a unique point information and represents
6 predetermined points, and a segment information that has a unique segment information and
7 connects the pair of point information, and representing a road with the point information and the

8 segment information, the point information further having a flag information that shows with one-bit
9 a relation of the point information with other point information according to the determination
10 whether the represented points are identical or not and represents the road arrangement; [[and]]

11 a coordinates matching section that recognizes the relation of the point information with other
12 point information based on the flag information of the point information acquired by the map
13 information acquiring section and recognizes the road arrangement,

14 a current position acquiring section that acquires a current position of the movable body
15 information for the current position;

16 a destination information acquiring section that acquires a destination to which the movable
17 body travels; and

18 a search section that searches for a travel route on which the movable body travels based on
19 the current position and the destination using the matching data;

20 the system, further comprising:

21 a terminal unit that acquires the road arrangement and the travel route recognized by the map
22 information processing device over a network.

1 Claim 31 (withdrawn): A map information processing system, comprising:
2 a map information processing device,
3 wherein the map information processing device performs a processing on a map information
4 being stored in a storage, including a plurality of point information that has a coordinates information

5 and a unique point information and represents predetermined points, and a segment information that
6 has a unique segment information and connects the pair of point information, and representing a road
7 with the point information and the segment information, and

8 wherein the point information has a flag information showing a relation with other point
9 information according to the determination whether the represented points are identical or not and
10 representing the road arrangement;

11 the map information processing device, further comprising:

12 a map information acquiring section that acquires at least the point information out of the
13 map information; and

14 a coordinates matching section that recognizes the relation of the point information with other
15 point information based on the flag information of the point information acquired by the map
16 information acquiring section and recognizes the road arrangement,

17 the system, further comprising:

18 a terminal unit that acquires the road arrangement recognized by the map information
19 processing device over a network.

1 Claim 32 (withdrawn): A map information processing system, comprising:

2 a map information processing device, comprising a search section that searches the travel
3 route based on the road arrangement recognized by the coordinates matching section; and

4 a terminal unit that acquires a travel route searched by the map information processing device

over a network.

Claim 33 (withdrawn): The map information processing system according to claim 22 for processing the map information stored in the storage, the map information including the plurality of point information that has the coordinates information and the unique point information and represents the predetermined points, and the segment information that has the unique segment information and connects the pair of point information, and representing the road with the point information and the segment information,

wherein the point information has a flag information showing a relation with other point information according to the determination whether the represented points are identical or not and representing the road arrangement,

the map information processing system, further comprising:

a map information processing device that recognizes the road arrangement by recognizing the relation of the point information with other point information based on the flag information; and

the terminal unit that acquires the road arrangement recognized by the map information processing device over the network.

Claim 34 (withdrawn): The map information processing system according to claim 23 for processing the map information stored in the storage, the map information including the plurality

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of point information that has the coordinates information and the unique point information and represents the predetermined points, and the segment information that has the unique segment information and connects the pair of point information, and representing the road with the point information and the segment information,

wherein the point information has a flag information showing a relation with other point information according to the determination whether the represented points are identical or not and representing the road arrangement,

the map information processing system, further comprising:

a map information processing device that recognizes the road arrangement by recognizing the relation of the point information with other point information based on the flag information; and

the terminal unit that acquires the road arrangement recognized by the map information processing device over the network.

Claim 35 (withdrawn): The map information processing system according to claim 33, comprising a search section that searches a travel route based on the road arrangement recognized by the map information processing device.

Claim 36 (withdrawn): The map information processing system according to claim 34, comprising a search section that searches a travel route based on the road arrangement recognized by the map information processing device.

1 Claim 37 (withdrawn): The map information processing system according to claim 35,
2 wherein the map information processing device has the search section.

1 Claim 38 (withdrawn): The map information processing system according to claim 36,
2 wherein the map information processing device has the search section.

1 Claim 39 (withdrawn): The map information processing system according to any one
2 of claims 33, wherein the terminal unit includes a map matching section that performs matching
3 between the map information and a current position.

1 Claim 40 (withdrawn): The map information processing system according to any one
2 of claims 34, wherein the terminal unit includes a map matching section that performs matching
3 between the map information and a current position.

1 Claim 41 (currently amended): A map information processing method for displaying
2 a current position of a movable body overlaid onto a map on a display, comprising the steps of:
3 acquiring a current position ~~information~~ for the current position of the movable body and a
4 destination to which the movable body travels;
5 correcting the current position ~~information~~ so that the current position based on the acquired
6 current position ~~information~~ is on a road represented by a point information and a segment

information of a matching data including the plurality of point information that has a coordinates information and a unique point information and represents predetermined points and a segment information that has a unique segment information and connects the pair of point information, the matching data further including a flag information that shows with one-bit a relation of the point information with other point information according to the determination whether the represented points are identical or not and represents the road arrangement, the current position information being corrected by recognizing the relation of the point information with the other point information having the same coordinates information based on the flag information of the point information to recognize the road arrangement; [[and]]

searching a travel route on which the movable body travels based on the current position and the destination using the matching data; and

displaying the [[road]] travel route based on the point information and the segment information on the display to display the map on the display, and overlaying the current position corrected by the correction section onto the displayed [[road]] travel route on the display.

Claim 42 (currently amended): A map information processing method executed by a computing section for displaying a current position overlaid onto a map on a display of a terminal unit connected to a server unit that stores a map information over a network in a manner capable of sending/receiving various information,

the map information processing method executed by the computing section, comprising the

steps of:

generating a current position ~~information~~ for a current position of a movable body and a destination to which the movable body travels at the terminal unit;

acquiring the current position ~~information~~ at the server unit from the terminal unit over the network;

correcting the current position ~~information~~ at the server unit so that the current position is on a road represented by a point information and a segment information of a matching data of the map information including the plurality of point information that has a coordinates information and a unique point information and represents predetermined points and a segment information that has a unique segment information and connects the pair of point information, the matching data further including a flag information that shows with one-bit a relation of the point information with other point information according to the determination whether the represented points are identical or not and represents the road arrangement, the current position ~~information~~ being corrected by recognizing the relation of the point information with the other point information having the same coordinates information based on the flag information of the point information to recognize the road arrangement;

acquiring the corrected current position ~~information~~ and the matching data at the terminal unit from the server unit over the network; [[and]]

searching a travel route on which the movable body travels based on the current position and the destination using the matching data; and

26 displaying the represented ~~[[road]]~~ travel route based on the point information and the
27 segment information of the acquired matching data on the display of the terminal unit, and
28 overlaying the acquired and corrected current position ~~information~~ onto the displayed ~~[[road]]~~ travel
29 route on the display.

1 Claim 43 (currently amended): A map information processing method executed by a
2 computing section for and displaying a current position overlaid onto a map on a display of a
3 terminal unit connected to a server unit that stores a map information over a network in a manner
4 capable of sending/receiving various information,

5 the map information processing method executed by the computing section, comprising the
6 steps of:

7 generating a current position ~~information~~ for a current position of a movable body and a
8 destination to which the movable body travels at the terminal unit;

9 acquiring a matching data of the map information including a plurality of point information
10 that has a coordinates information and a unique point information and represents predetermined
11 points, and a segment information that has a unique segment information and connects the pair of
12 point information, and representing a road with the point information and the segment information,
13 at the terminal unit from the server unit over the network, the matching data further including a flag
14 information that shows with one-bit a relation of the point information with other point information
15 according to the determination whether the represented points are identical or not and represents the

road arrangement;

correcting the current position ~~information~~ so that the current position is on the road represented by the point information and the segment information of the acquired matching data at the terminal unit, the current position ~~information~~ being corrected by recognizing the relation of the point information with the other point information having the same coordinates information based on the flag information of the point information to recognize the road arrangement; [[and]]

searching a travel route on which the movable body travels based on the current position and the destination using the matching data; and

displaying the [[road]] travel route based on the point information and the segment information of the matching data on the display and overlaying the corrected current position ~~information~~ onto the displayed [[road]] travel route on the display.

Claim 44 (original): The map information processing method according to claim 41 for distributing the map information by a computing section over a network,

wherein the map information has the matching data including the plurality of point information that has the coordinates information and the unique point information and represents the predetermined points, and the segment information that has the unique segment information and connects the pair of point information, and representing the road with the point information and the segment information, and a display data including an element data for an element constituting the map of a predetermined area corresponding to the matching data,

the map information processing method executed by the computing section, comprising the steps of:

recognizing a request information for requesting the distribution of at least one of the matching data and the display data; and

distributing at least one of the matching data and the display data over the network based on the recognized request information.

Claim 45 (original): The map information processing method according to claim 41 for distributing the map information by a computing section over a network to provide the traveling state of a movable body with use of the map information,

wherein the map information has the matching data including the plurality of point information that has the coordinates information and the unique point information and represents the predetermined points, the segment information that has the unique segment information and connects the pair of point information, representing the road with the point information and the segment information, and including a plurality of matching mesh information divided into predetermined areas, and a display data including an element data for an element constituting the map of a predetermined area corresponding to the matching data,

the map information processing method executed by the computing section, comprising the steps of:

acquiring a current position information for a current position of the movable body and a

14 destination information for a destination to which the movable body travels;

15 searching a travel route on which the movable body travels with use of the matching data
16 based on the current position information and the destination information; and

17 distributing a matching mesh information including the point information and the segment
18 information that represent the road corresponding to the searched travel route and a display mesh
19 information corresponding to an area other than the area represented by the matching mesh
20 information together with information for the travel route over the network.

1 Claim 46 (withdrawn): The map information processing method according to claim
2 41 for processing the map information including the plurality of point information that has the
3 coordinates information and the unique point information and represents the predetermined points,
4 and the segment information that has the unique segment information and connects the pair of point
5 information, and representing the road with the point information and the segment information,
6 wherein the point information has a flag information showing a relation with other point
7 information according to the determination whether the represented points are identical or not and
8 representing the road arrangement,

9 the map information processing method, comprising the step of recognizing the road
10 arrangement by recognizing the relation of the point information with other point information based
11 on the flag information.

1 Claim 47 (withdrawn): The map information processing method according to claim
2 46, comprising the step of recognizing the road arrangement by recognizing the relation of the point
3 information with other point information based on the flag information of the map information stored
4 in a recording medium storing the map information.

1 Claim 48 (previously presented): A computer readable medium encoded with computer
2 executable instructions for executing a map information processing method by a computing section,
3 the method, comprising the steps of:
4 acquiring a current position information for a current position;
5 correcting the current position information so that the current position based on the acquired
6 current position information is on a road represented by a point information and a segment
7 information of a matching data including the plurality of point information that has a coordinates
8 information and a unique point information and represents predetermined points and a segment
9 information that has a unique segment information and connects the pair of point information; and
10 displaying the road based on the point information and the segment information on the
11 display to display the map on the display, and overlaying the current position corrected by the
12 correction section onto the displayed road on the display.

1 Claim 49 (previously presented): A computer readable medium encoded with computer
2 executable instructions for executing a map information processing method for displaying a current

3 position overlaid onto a map on a display of a terminal unit connected to a server unit that stores a
4 map information over a network in a manner capable of sending/receiving various information, the
5 program being executed by a computing section,

6 the map information processing method executed by the computing section, comprising the
7 steps of:

8 generating a current position information for the current position at the terminal unit;

9 acquiring the current position information at the server unit from the terminal unit over the
10 network;

11 correcting the current position information at the server unit so that the current position is
12 on a road represented by a point information and a segment information of a matching data of the
13 map information including the plurality of point information that has a coordinates information and
14 a unique point information and represents predetermined points and a segment information that has
15 a unique segment information and connects the pair of point information;

16 acquiring the corrected current position information and the matching data at the terminal
17 unit from the server unit over the network; and

18 displaying the represented road based on the point information and the segment information
19 of the acquired matching data on the display of the terminal unit, and overlaying the acquired and
20 corrected current position information onto the displayed road on the display.

1 Claim 50 (previously presented): A computer readable medium encoded with computer

2 executable instructions for executing a map information processing method for and displaying a
3 current position overlaid onto a map on a display of a terminal unit connected to a server unit that
4 stores a map information over a network in a manner capable of sending/receiving various
5 information, the program being executed by a computing section,

6 the map information processing method executed by the computing section, comprising the
7 steps of:

8 generating a current position information for a current position at the terminal unit;

9 acquiring a matching data of the map information including a plurality of point information
10 that has a coordinates information and a unique point information and represents predetermined
11 points, and a segment information that has a unique segment information and connects the pair of
12 point information, and representing a road with the point information and the segment information,
13 at the terminal unit from the server unit over the network;

14 correcting the current position information so that the current position is on the road
15 represented by the point information and the segment information of the acquired matching data at
16 the terminal unit; and

17 displaying the road based on the point information and the segment information of the
18 matching data on the display and overlaying the corrected current position information onto the
19 displayed road on the display.

1 Claim 51 (currently amended): A ~~recording~~ computer readable medium storing a map

information processing program in a manner readable by a computing section, the program executing

a map information processing method by a computing section,

the method, comprising the steps of:

acquiring a current position information for the current position;

correcting the current position information so that the current position based on the acquired current position information is on a road represented by a point information and a segment information of a matching data including the plurality of point information that has a coordinates information and a unique point information and represents predetermined points and a segment information that has a unique segment information and connects the pair of point information; and

displaying the road based on the point information and the segment information on the display to display the map on the display, and overlaying the current position corrected by the correction section onto the displayed road on the display.

Claim 52 (currently amended): A recording computer readable medium storing a map information processing program in a manner readable by a computing section, the program executing a map information processing method for displaying a current position overlaid onto a map on a display of a terminal unit connected to a server unit that stores a map information over a network in a manner capable of sending/receiving various information, the program being executed by a computing section,

the map information processing method executed by the computing section, comprising the

8 steps of:

9 generating a current position information for a current position at the terminal unit;

10 acquiring the current position information at the server unit from the terminal unit over the
11 network;

12 correcting the current position information at the server unit so that the current position is
13 on a road represented by a point information and a segment information of a matching data of the
14 map information including the plurality of point information that has a coordinates information and
15 a unique point information and represents predetermined points and a segment information that has
16 a unique segment information and connects the pair of point information;

17 acquiring the corrected current position information and the matching data at the terminal
18 unit from the server unit over the network; and

19 displaying the represented road based on the point information and the segment information
20 of the acquired matching data on the display of the terminal unit, and overlaying the acquired and
21 corrected current position information onto the displayed road on the display.

1 Claim 53 (currently amended): A recording computer readable medium storing a map
2 information processing program in a manner readable by a computing section, the program executing
3 a map information processing method for and displaying a current position overlaid onto a map on
4 a display of a terminal unit connected to a server unit that stores a map information over a network
5 in a manner capable of sending/receiving various information, the program being executed by a

6 computing section,

7 the map information processing method executed by the computing section, comprising the
8 steps of:

9 generating a current position information for a current position at the terminal unit;

10 acquiring a matching data of the map information including a plurality of point information
11 that has a coordinates information and a unique point information and represents predetermined
12 points, and a segment information that has a unique segment information and connects the pair of
13 point information, and representing a road with the point information and the segment information,
14 at the terminal unit from the server unit over the network;

15 correcting the current position information so that the current position is on the road
16 represented by the point information and the segment information of the acquired matching data at
17 the terminal unit; and

18 displaying the road based on the point information and the segment information of the
19 matching data on the display and overlaying the corrected current position information onto the
20 displayed road on the display.

1 Claim 54 (withdrawn): A map information processing program executing a map
2 information processing method for distributing a map information by a computing section over a
3 network, the program being executed by a computing section,
4 wherein the map information has a matching data including a plurality of point information

5 that has a coordinates information and a unique point information and represents predetermined
6 points, and a segment information that has a unique segment information and connects the pair of
7 point information, and representing a road with the point information and the segment information,
8 and a display data including an element data for an element constituting the map of a predetermined
9 area corresponding to the matching data,

10 the map information processing method executed by the computing section, comprising the
11 steps of:

12 recognizing a request information for requesting the distribution of at least one of the
13 matching data and the display data; and

14 distributing at least one of the matching data and the display data over the network based on
15 the recognized request information.

1 Claim 55 (withdrawn): A recording medium storing a map information processing
2 program in a manner readable by a computing section, the program executing a map information
3 processing method for distributing a map information by a computing section over a network, the
4 program being executed by a computing section,

5 wherein the map information has a matching data including a plurality of point information
6 that has a coordinates information and a unique point information and represents predetermined
7 points, and a segment information that has a unique segment information and connects the pair of
8 point information, and representing a road with the point information and the segment information,

9 and a display data including an element data for an element constituting the map of a predetermined
10 area corresponding to the matching data,

11 the map information processing method executed by the computing section, comprising the
12 steps of:

13 recognizing a request information for requesting the distribution of at least one of the
14 matching data and the display data; and

15 distributing at least one of the matching data and the display data over the network based on
16 the recognized request information.

1 Claim 56 (withdrawn): A map information processing program executing a map
2 information processing method for distributing the map information by a computing section over a
3 network to provide the traveling state of a movable body with use of the map information, the
4 program being executed by the computing section,

5 wherein a map information has a matching data including a plurality of point information that
6 has a coordinates information and a unique point information and represents predetermined points,
7 a segment information that has a unique segment information and connects the pair of point
8 information, representing a road with the point information and the segment information, and
9 including a plurality of matching mesh information divided into predetermined areas, and a display
10 data including an element data for an element constituting the map of a predetermined area
11 corresponding to the matching data,

12 the map information processing method executed by the computing section, comprising the
13 steps of:

14 acquiring a current position information for a current position of the movable body and a
15 destination information for a destination to which the movable body travels;

16 searching a travel route on which the movable body travels with use of the matching data
17 based on the current position information and the destination information; and

18 distributing a matching mesh information including the point information and the segment
19 information that represent the road corresponding to the searched travel route and a display mesh
20 information corresponding to an area other than the area represented by the matching mesh
21 information together with information for the travel route over the network.

1 Claim 57 (withdrawn): A recording medium storing a map information processing
2 program in a manner readable by a computing section, the program executing a map information
3 processing method for distributing the map information by a computing section over a network to
4 provide the traveling state of a movable body with use of the map information, the program being
5 executed by the computing section,

6 wherein a map information has a matching data including a plurality of point information that
7 has a coordinates information and a unique point information and represents predetermined points,
8 the segment information that has a unique segment information and connects the pair of point
9 information, representing a road with the point information and the segment information, and

including a plurality of matching mesh information divided into predetermined areas, and a display data including an element data for an element constituting the map of a predetermined area corresponding to the matching data,

the map information processing method executed by the computing section, comprising the steps of:

acquiring a current position information for a current position of the movable body and a destination information for a destination to which the movable body travels;

searching a travel route on which the movable body travels with use of the matching data based on the current position information and the destination information; and

distributing a matching mesh information including the point information and the segment information that represent the road corresponding to the searched travel route and a display mesh information corresponding to an area other than the area represented by the matching mesh information together with information for the travel route over the network.

Claim 58 (withdrawn): A map information processing program executing a map information processing method for processing a map information including a plurality of point information that has a coordinates information and a unique point information and represents predetermined points, and a segment information that has a unique segment information and connects the pair of point information, and representing a road with the point information and the segment information, the program being executed by a computing section,

7 wherein the point information has a flag information showing a relation with other point
8 information according to the determination whether the represented points are identical or not and
9 representing the road arrangement,

10 the map information processing method, comprising the step of recognizing the road
11 arrangement by recognizing the relation of the point information with other point information based
12 on the flag information.

1 Claim 59 (withdrawn): A map information processing program executing a map
2 information processing method by a computing section, the method comprising the step of
3 recognizing the road arrangement by recognizing the relation of the point information with other
4 point information based on the flag information of the map information stored in a recording medium
5 storing the map information.

1 Claim 60 (withdrawn): A recording medium storing a map information processing
2 program in a manner readable by a computing section, the program executing a map information
3 processing method for processing a map information including a plurality of point information that
4 has a coordinates information and a unique point information and represents predetermined points,
5 and a segment information that has a unique segment information and connects the pair of point
6 information, and representing a road with the point information and the segment information, the
7 program being executed by a computing section,

8 wherein the point information has a flag information showing a relation with other point
9 information according to the determination whether the represented points are identical or not and
10 representing the road arrangement,

11 the map information processing method, comprising the step of recognizing the road
12 arrangement by recognizing the relation of the point information with other point information based
13 on the flag information.

1 Claim 61 (withdrawn): A recording medium storing a map information processing
2 program in a manner readable by a computing section, the program executing a map information
3 processing method by a computing section, the method comprising the step of recognizing the road
4 arrangement by recognizing the relation of the point information with other point information based
5 on the flag information of the map information stored in a recording medium storing the map
6 information.

1 Claim 62 (withdrawn): A recording medium storing a map information including a
2 plurality of point information that has a coordinates information and a unique point information and
3 represents predetermined points, and a segment information that has a unique segment information
4 and connects the pair of point information, and representing a road with the point information and
5 the segment information, wherein the point information has a flag information showing a relation
6 with other point information according to the determination whether the represented points are

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7 identical or not and representing the road arrangement.

1 Claim 63 (withdrawn): A recording medium storing the map information according
2 to claim 62, wherein the flag information is represented by two-bit information.

1 Claim 64 (withdrawn): A recording medium storing the map information according
2 to claim 62, wherein the flag information represents either one of the information indicating that the
3 point information are identical and the information indicating that the point information are not
4 identical.

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